## OFE 14A2

#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Bu

Application of:

ROGAN, et al

Serial No.: 10/676,248

Filed: September 30, 2003

SUBTELOMERIC DNA PROBES AND METHOD OF PRODUCING SAME

Docket No. 33026

Customer No.: 23,589

Group Art Unit No: 1634

Confirmation No.: 5913

Examiner: WONG, Jennifer Shin Shin

Commissioner of Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

#### **TRANSMITTAL**

Transmitted herewith are: Express Mail Transmittal (1 pg); Information Disclosure Statement (1 pg); Information Disclosure Statement by Applicant (8 pgs); Paper Copies of "Foreign Patent Documents" and "Other Documents" as shown on the Information Disclosure Statement by Applicant; and return postcard (1 pg)

EV 760682098 US

Respectfully submitted,

Date: April 6, 2006

Tracey S. Truitt, Reg. No. 43,205

HOVEY WILLIAMS, LLP

2405 Grand Boulevard, Suite 400

Kansas City, Missouri 64108

816/474-9050

ATTORNEYS FOR APPLICANT(S)

# pplication of:

#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ROGAN, et al

Serial No.: 10/676,248

Filed: September 30, 2003

SUBTELOMERIC DNA PROBES AND METHOD OF PRODUCING SAME

Docket No.: 33026

Confirmation No.: 5913

Group Art Unit No.: 1634

Customer No.: 23,589

Examiner: WONG, Jennifer Shin Shin

Commissioner of Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

#### INFORMATION DISCLOSURE STATEMENT

The attached references are being filed to fulfill the duty of candor and good faith toward the Patent and Trademark Office, as required by 37 C.F.R. §1.56.

Any fee which is due in connection with this Statement should be applied against Deposit Account No. 19-0522.

Respectfully submitted,

Tracey S. Truitt, Reg. No. 43,205

HOVEY WILLIAMS LLP

2405 Grand Boulevard, Suite 400

35

Kansas City, Missouri 64108

(816) 474-9050

FORM PTO-1449 (Rev. 2-32)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO.	SERIAL NO. €10/676,248
rφf <b>ζ<sup>ν</sup>΄ Ο</b> ΄ ' <b>'ζ</b> sήγΑΤ	RMATION DISCLOSURE EMENT BY APPLICANT	APPLICANT: ♦ROGAN et al	
OPR OF IMPOSES	everal sheets if necessary)	FILING DATE: September 30, 2003	GROUP: §1645
FROM THABER	II S DATENT DO	OCUMENTS	

#### **U.S. PATENT DOCUMENTS**

EXAM. INITIAL			DOC	UME	ENT I	NUMI	BER		DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6	0	0	7	9	9	4	12/28/1999	WARD et al			
		6	4	0	0	0	3	3	8/8/2000	SMITH et al			
		6	4	0	6	8	2	0	6/18/2002	VOLKERS et al			
		6	5	2	1	4	2	7	02/18/03	EVANS			
-	0	9	5	7	3	0	8	0	05/16/00	KNOLL			
	0	9	8	5	4	8	6	7	05/14/01	KNOLL			
-													

#### FOREIGN PATENT DOCUMENTS

		DO	COM	ENT N	NUMBE	ER		DATE	COUNTRY	CLASS	SUBCLASS	TRANSL	ATION
wo	0	1	8	8	0	8	9	11/22/2001				YES	NO
 wo	9	9	0	6	5	5	2	2/11/99	PCT				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

In Situ Hybridization to Metaphase Chromosomes and Interphase Nuclei; Unit 4.3 (1994) Current Protocols in Human Genetics; pp 1-28
FISHing for mechanisms of cytogenetically defined terminal deletions using chromosome-specific subtelomeric probes; Ballif, Blake C., Kashork, Catherine D., and Schaffer, Lisa G.; European Journal of Human Genetics (2000) B, pp 764-770
Identification of Cryptic Rearrangements in Patients with 18q- Deletion Syndrome; Brkanac, Zoran; Cody, Jannine D., Leach, Robin J., and DuPont, Barbara R.; American Journal of Human Genetics 62: 1998; pp 1500-1506
Structure and Polymorphism of Human Telomere-Associated DNA; Brown, MacKinnon, Villasante, Spurr, Buckle and Dobson; Cell; pp 119-132
Subtelomeric chromosome rearrangements are detected using an innovative 12-color FISH assay (M-TEL); Brown, Saracoglu, Uhrig, Speicher, Eils and Kearney; Nature Medicine; April 2001, Vol. 7 Number 4; pp 497-501
Maternal Balanced Translocation Leading to Partial Duplication of 4q and Partial Deletion of 1p Band-Specific Painting Probes Generated by Choromsome Microdissection; Chen, Grebe, Guan, Notohamiprodjo, Nutting, Stone, Trent and Sandberg; American Journal of Medical Genetics 71 (1997) pp 160-166
Terminal Deletion of the Long Arm of Chromosome 3 [46,XX,del(3)(q27 qter)]; Chitayat, Babul, Silver, Jay, Teshima, Babyn and Becker; American Journal of Medical Genetics 61 (1996) pp 45-48

Effective amplification of long targets from cloned inserts and human genomic DNA; Cheng, Fockler, Barnes and Higuchi; Proc. Nat'l. Acad. Sci. USA; Vol. 91; June 1994; pp 5695-5699
A novel automated strategy for screening cryptic telomeric rearrangement in children with idipathic mental retardation; Colleaux, Rio, Heuertz, Moindrault, Turleau, Ozilou, Gosset, Raoult, Lyonnet, Cormier-Daire, Amiel, Le Merrer, Picq, de Blois, Prieur, Romana, Cornelis, Vekemans and Munnich; European Journal of Human Genetics (2001) Vol 9; pp 319-327
Submicroscopic 8pter Deletion, Mild Mental Retardation, and Behavioral Problems Caused by a Familial t(8;20)(p23;p13); de Vries, Lees, Knight, Regan, Corney, Flint, Baricoat and Winter; American Journal of Medical Genetics 99 (2001) pp 314-319
Clinical phenotype associated with terminal 2q37 deletion; Conrad, Dewald, Christensen, Lopez, Higgins, and Pierpont; Clinical Genetics 1995; Vol 48; pp 134-139
Healing of Broken Human Chromosomes by the Addition of Telomeric Repeats; Flint, Craddock, Villegas, Bentley, Williams, Galanello, Cao, Wood, Ayyub, and Higgs; American Journal of Human Genetics; Vol 55 (1994) pp505-512
The detection of subtelomeric chromosomal rearrangements in idiopathic mental retardation; Flint, Wilkie, Buckle, Winter, Holland, and McDermid; Nature Genetics; February 1995; Vol. 9; pp 132-140
A Sense of the End; Susan M. Gasser; Science Magazine Vol. 288; May 2000; pp 1377-1379
Clinical and Cytogenetic Findings in Seven Cases of Inverted Duplication of 8p With Evidence of a Telomeric Deletion Using Fluorescence In Situ Hybridization; Guo, Callif-Daley, Zapata, and Miller; American Journal of Medical Genetics Vol 58 (1995) pp 230-236
Del (18p) shown to be a cryptic translocation using a multiprobe FISH assay for subtelomeric chromosome rearrangements; Horsley, Knight, Nixon, Huson, Fitchett, Boone, Hilton-Jones, Flint, and Kearney; Journal of Medical Genetics; Vol 35 (1998); pp 722-726
Chromosome 1p terminal deletion: report of new findings and confirmation of two characteristic phenotypes; Keppler-Noreuil, Carroll, Finley, and Rutledge; Journal of Medical Genetics (1995) Vol 32; pp 619-622
Subtle chromosomal rearrangements in children with unexplained mental retardation; Knight, Regan, Nicod, Horsley, Kearney, Homfray, Winter, Bolton, and Flint; THE LANCET Vol 354, November 1999; pp 1676-1681
Perfect endings: a review of subtelomeric probes and their use in clinical diagnosis; Knight and Flint; Journal of Medical Genetics; Vol 37 (2000) pp 401-409
An Optimized Set of Human Telomere Ciones for Studying Telomere Integrity and Architecture; Knight, Lese, Precht, Kuc, Ning, Lucas, Regan, Brenan, Nicod, Lawrie, Cardy, Nguyen, Hudson, Riethman, Ledbetter, and Flint; American Journal of Human Genetics; Vol 67 (2000) pp 320-332
Proximal Interstitial 6q Deletion: A Recognizable Syndrome; Kumar, Riordan, Dawson and Chudley; American Journal of Medical Genetics; Vol 71 (1997) pp 353-356
Characterization of Physical Gap Sizes at Human Telomeres; Lese, Fantes, Riethman, and Ledbetter; Genome Research; 1999 by Cold Spring Harbor Laboratory Press; pp 888-894
Cryptic 6q Subtelomeric Deletion Associated With a Paracentric Inversion in a Mildly Retarded Child; Lorda-Snachez, Pajares, Roche, Sanz, de Alba, Gonzalez-Gonzalez, Ibanez, Ramos, and Ayuso; American Journal of Medical Genetics; Vol. 95 (2000) pp 336-338
A FISH probe specific for the telomeric region of 6p; Mirza, Davies, and Ragoussis; Cytogenet Cell Genet Vol 77 (1997) pp 175
A complete set of human telomeric probes and their clinical application; National Institutes of Health and Institute of Molecular Medicine Collaboration; Nature Genetics Vol 14 (1996); pp 86-89
Molecular cytogenetic analysis of a familial 8p23.1 deletion associated with minimal dysmorphic features, seizures, and mild mental retardation; Pettenati, Rao, Johnson, Hayworth, Crandall, Huff, and Thomas; Human Genetics; Vol 89 (1992) pp602-606
Fluorescence in situ hybridization with human chromosome-specific libraries: Detection of trisomy 21 and translocation of chromosome 4; Pinkel, Landegent, Collins, Fuscoe, Segraves, Lucas, and Gray; Proc. Nat'l. Acad. Sci. USA Vol 85 (1988) pp 9138-9142
Characterization of Short Tandem Repeats from Thirty-One Human Telomeres; Rosenberg, Hui, Ma, Nusbaum, Clark, Robinson, Dziadzio, Swain, Keith, Hudson, Biesecker, and Flint; GENOME RESEARCH 1997 by Cold Spring Harbor Laboratory Press; pp 917-923
Chromosome 1p36 Deletions: The Clinical Phenotype and Molecular Characterization of a Common Newly Delineated Syndrome; Shapira, McCaskill, Northrup, Spikes, Elder, Sutton, Korenberg, Greenberg, and Shaffer; American Journal of Human Genetics; Vol 61 (1997) pp 642-650

	Screening for submicroscopic chromosome rearrangements in children with idipathic mental retardation using microsatellite markers for the chromosome telomeres; Slavotinek, Rosenberg, Knight, Gaunt, Fergusson, Killoran, Clayton-Smith, Kingston, Campbell, Flint, Donnai, and Biesecker; Journal of Medical Genetics Vol 36 (1999) ;; 405-411
	Delineation of Multiple Deleted Regions in 7q in Myeloid Disorders; Tosi, Scherer, Giudici, Czepulkowski, Biondi, and Kearney; Genes, Chromosomes & Cancer Vol 25 (1999) pp 384-392
	Large multi-chromosomal duplications encompass many members of the olfactory receptor gene family in the human genome; Trask, Massa, Brand-Arpon, Chan, Friedman, Nguyen, Eichler, van den Engh, Rouquier, Shizuya, and Giorgi; Human Molecular Genetics, Vol 7 (1998) pp 2007-2020
	Members of the olfactory receptor gene family are contained in large blocks of DNA duplicated polymorphically near the ends of human chromosomes; Trask, Friedman, Martin-Gallardo, Rowen, Akinbami, Blankenship, Collins, Giorgi, Iadonato, Johnson, Kuo, Massa, Morrish, Naylor, Nguyen, Rouquier, Smith, Wong, Youngblom, and van den Engh; Human Molecular Genetics, Vol. 7, No. 1 (1998) pp 13-26
	Interstitial Deletion (6)q13q15; Gershoni-Baruch, Mandel, Bar El, Bar-Nizan, Borochowitz, and Dar; American Journal of Medical Genetics, Vol. 63 (1996) pp 345-347
	NCBI Database, National Center for Biotechnology Information, National Library of Medicine, NIH (Bethesda, MD, USA) GenBank Accession No. AQ215698, 19 September, 1998
	NCBI Database, National Center for Biotechnology Information, National Library of Medicine, NIH (Bethesda, MD, USA) GenBank Accession No. Al337390, 18 March 1999
	Sequence-Based Design of Single-Copy Genomic DNA Probes for Fluorescence In Situ Hybridization; Rogan, Cazcarro, and Knoll; Genome Research 2001 by Cold Spring Harbor Laboratory Press; pp 1086-1094
	Posters: Cytogenetics; (date unknown) Pg. 308 #796: Detection of chromosomal rearrangements with single copy FISH probe arrays; Knoll, Angell, and Rogan
	Posters: Genetic Counseling and Genetic Education (date unknown) Pg. 340 #983: The utility of subtelomeric and chromosome testing in patients with congenital heart defects; Russell, Wernovsky, Goldmuntz, Gaynor, Krantz, Ming, Saitta, McDonald-McGinn, Celle, Spinner, and Zackai
	Isolation and characterization of a new gene encoding a member of the HIRA family of proteins from <i>Drosophila melanogaster;</i> Kirov, Shtilbans and Rushlow; Gene 212 (1998) 323-332
	Deletion of Cell Division Cycle 2-Like 1 Gene Locus on 1p36 in Non-Hodgkin Lymphoma; Dave, Pickering, Hess, Weisenburger, Armitage and Sanger; Cancer Genet Cytogenet 108:120-126 (1999)
	Isolation of a putative transcriptional regular from the region of 22q11 deleted in DiGeorge syndrome, Shprintzen syndrome and familial congenital heart disease; Halford, Wadey, Roberts, Daw, Whiting, O'Donnell, Dunham, Bentley, Lindsay, Baldini, Francis, Lehrach, Williamson, Wilson, Goodship, Cross, Burn and Scambler; Human Molecular Genetics, 1993, Vol. 2, No. 12 pgs. 2099-2107
	A human homolog of the S. cerevisiae HIR1 and HIR2 transcriptional repressors cloned from the DiGeorge syndrome critical region; Lamour, Lecluse, Desmaze, Spector, Bodescot, Aurias, Osley and Lipinski; Human Molecular Genetics, 1995, Vol. 4, No 5 pgs. 791-799
-	
1	

EXAMINER: Initial if citation considered, whether not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**O.S. DEPARTMENT OF COMMERCE** (Rev. 2-32) PATENT AND TRADEMARK OFFICE

> INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO. **★30307A-DIV1** 

SERIAL NO. **★**10/876,297

APPLICANT: KNOLL, Joan et al

FILING DATE:

6/23/04

GROUP: 🦠

CONF. NO: 1

#### **U.S. PATENT DOCUMENTS**

<u></u>	Ī	T	_						T		<del> </del>	
EXAM INITIA L	U.S.	DOCUMENT NUMBER					мве	₹	INVENTOR NAME	CLASS	SUB- CLASS	ISSUE DATE (PATENT); PUBLICATION DATE (PUBLISHED APPLICATION); OR FILING DATE (NON-PUBLISHED APPLICATION)
	2002/	0	1	9	2	6	9	2	Palanisamy et al	435/6		12/2002
		6	1	2	1	4	1	9	Rowley et al	530/350		09/2000
		5	4	4	7	8	4	1	Gray et al			9/1995
		5	7	5	6	6	9	6	Gray et al			5/1998
		5	7	2	1	0	9	8	Pinkel et al			2/1998
		6	2	2	2	0	2	9	Edwards et al			4/2001
-		5	8	1	1	2	3	1	Farr et al			9/1998
		6	0	4	0	1	4	0	Croce et al			3/2000
					,							

#### FOREIGN PATENT DOCUMENTS

	DO	CUM	ENT	NUM	BER	PUBLICATION DATE	COUNTRY	COUNTRY			TRAN	SLATION
											YES	NO

#### OTHER DOCUMENTS (Including Publisher, Author, Title. Relevant Pages, and Date and Place of Publication)

Tanaka et al., Cancer Genetics and Cytogenetics, 1999. 133: 29-35.	
Rockman et al., Australian Journal of Medical Science, May 15, 1994; 56-57.	<del></del>
DeRisi et al., Nature Genetics, December 14, 1996; 457-460	· · · · · · · · · · · · · · · · · · ·
Sakuma, GenBank Accession No. ABOO1872, Feb. 13, 1998	······································
Urano, GenBank Accession No. AB002058, August 29, 1997	

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-32) PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)

FILING DATE:
6/23/04

ATTY. DOCKET NO.
30307A-DIV1

APPLICANT: KNOLL, Joan et al

#### **U.S. PATENT DOCUMENTS**

EXAM. INITIAL			DO	CUM	ENT	NUM	BER		INVENTOR NAME	CLASS	SUB- CLASS	ISSUE DATE (PATENT); PUBLICATION DATE (PUBLISHED APPLICATION); OR FILING DATE (NON-PUBLISHED APPLICATION)
							_					
			<u> </u>	-	<u> </u>						. , , , , , , , , , , , , , , , , , , ,	
		_	_	-	-	_		_				
		-			-	-	_	_				
				÷	$\vdash$		-	-				
	ļ	-		-	-			H				
•										-		

#### **FOREIGN PATENT DOCUMENTS**

		DO	CUMI	ENT	NUM	BER	PUBLICATION DATE	COUNTRY	CLASS	SUB- CLASS			
		ļ									YES	NO	
-	╀												
	-												
-							·						
	<del> </del>												
<u></u>	<u> </u>												

## OTHER DOCUMENTS (Including Publisher, Author, Title, Relevant Pages, and Date and Place of Publication)

 Inoue et al., GenBank Accession No. AB002135, July 23, 1999	
Watanabe, GenBank Accession No. AB003723, Feb. 25, 1998	
Kamei, GenBank Accession No. AB003592, July 19, 1999	
Ohno, GenBank Accession No. AB000114, Feb. 5, 1999	
Shimomura, GenBank Accession No. AB0000095, March 4, 1998	

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 (Rev. 2-32)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. \$30307A-DIV1	SERIAL NO. \$10/876,297			
STA	RMATION DISCLOSURE TEMENT BY APPLICANT	APPLICANT: KNOLL, Joan et al				
(Use s	everal sheets if necessary)	FILING DATE:	GROUP: ₩	CONF. NO:		

#### **U.S. PATENT DOCUMENTS**

EXAM. INITIAL		DO	CUM	ENT	NUM	BER		INVENTOR NAME	CLASS	SUB- CLASS	ISSUE DATE (PATENT); PUBLICATION DATE (PUBLISHED APPLICATION); OR FILING DATE (NON-PUBLISHED APPLICATION)
	_	<u> </u>					<u></u>				
					<u> </u>	l					
-											

#### **FOREIGN PATENT DOCUMENTS**

	DOC	CUMI	ENT	MUM	BER	PUBLICATION DATE	COUNTRY	CLASS	SUB- CLASS	TRANS	SLATION
										YES	NO

## OTHER DOCUMENTS (Including Publisher, Author, Title, Relevant Pages, and Date and Place of Publication)

Satoh, GenBank Accession No. AB000276, November 6, 1997
Yokouchi, GenBank Accession No. AB000520, September 26, 1997
Fununaga, GenBank Accession No. AB000409, Feb. 5, 1999
Fukuta, GenBank Accession No. AB003791, Feb. 14, 1998
Okumoto, GenBank Accession No. AB004546, July 11, 1998
Ikeda, GenBank Accession No. AB000812, Feb. 20, 1999

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 600. Draw line through

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-32) PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)

| Filing Date: | GROUP: | CONF. NO: |

#### **U.S. PATENT DOCUMENTS**

EXAM. INITIAL		DO	СИМ	ENT	NUM	BER		INVENTOR NAME	CLASS	SUB- CLASS	ISSUE DATE (PATENT); PUBLICATION DATE (PUBLISHED APPLICATION); OR FILING DATE (NON-PUBLISHED APPLICATION)
						Ĺ					
							_				
	1										
	 	-					-				
•	 	_									
	 +										
<del>                                     </del>	 $\dashv$										

#### **FOREIGN PATENT DOCUMENTS**

		DOCUMENT NUMBER PUBLICATION DATE					COL	JNTRY	CLASS		SUB- CLASS	TRANSLATION			
			1											YES	NO
								T							
•										·					
								1							

## OTHER DOCUMENTS (Including Publisher, Author, Title, Relevant Pages, and Date and Place of Publication)

Ishihara, GenBank Accession No. AB003333, Feb. 26, 1999
11:000-000 2001 by Cold Spring Harbor Laboratory Press ISSN 1088-9051/01; Sequence-Based Design of Single-Copy Genomic DNZ Probes for Fluorescence In Situ Hybridization; pgs. 1-9
Med-Genet 1999; 36: 657-663; Monosomy 1P36; Slavotinek, Shaffer, Shapira
Current Opinion in Structural Biology, 1998, 8: Repeats in genomic DNA; mining and meaning; Jerzy Jurka; 333-337
Genomics 29; 397-402 (1995); Human Genomic characterization of a Novel Locus-Specific Repetitive Sequence

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-32) PATENT AND TRADEMARK OFFICE STATEMENT BY APPLICANT (Use several sheets if necessary)

FILING DATE:
6/23/04

ATTY. DOCKET NO.
30307A-DIV1

APPLICANT: \*\*KNOLL, Joan et al

FILING DATE:
6/23/04

CONF. NO: \*\*

#### **U.S. PATENT DOCUMENTS**

EXAM. INITIAL		DO	CUM	ENT	NUM	BER	 INVENTOR NAME	CLASS	SUB- CLASS	ISSUE DATE (PATENT); PUBLICATION DATE (PUBLISHED APPLICATION); OR FILING DATE (NON-PUBLISHED APPLICATION)
					ŀ					
•										
-	·									
							·			
9										
										·

#### FOREIGN PATENT DOCUMENTS

	DOC	CUME	ENT	NUM	BER	·	PUBLICATION DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION		
											YES	NO	
			ļ										
2		·											
	]												

## OTHER DOCUMENTS (Including Publisher, Author, Title, Relevant Pages, and Date and Place of Publication)

		1991 Oxford University Press, Nucleic Acids Research, Vol. 19, No. 17 4731-4738; Medium reiteration frequency repetitive sequences in the human genome; Kaplan, Jurka, Solus and Duncan.
		Molecular Cloning, A Laboratory Manual, Second Edition, 1989 by Cold Spring Harbor Laboratory Press; The Effects of Length and Degeneracy of the Oligonucleotide on the Specificity of Hybridization.
		Science 1990 Oct 5; 250(4977): 94-8; Chromosomal region of the cystic fibrosis gene in yeast artificial chromosomes; a model for human genome mapping; Green Ed, Olson MV.
<u> </u>	<u> </u>	